On page 1, please replace the first full paragraph with the following amended paragraph:

A3

The invention relates to a stereomicroscope.

On page 2, please replace the 3rd full paragraph with the following amended paragraph:

It is therefore an object of the present invention to develop a system which, in spite of a variable stereo base, does not reduce the light intensity in the beam path - at least for a certain period and for each beam path separately - by a significant amount. In addition, it is intended to enable recordings - as known per se - using only a single image recording device, for example using a single video camera. Preferably, it is furthermore intended to provide only one main objective and to restrict the constructional size of the stereomicroscope to a minimum.

A4

On page 3, please replace the 1st full paragraph with the following amended paragraph:

This object is achieved, for example, by means of the features described herein. As a result of the arrangement of the adjusting device behind the main objective, there is an integrated construction with low light losses and without the disadvantages listed above.

A5

On page 6, before the 1st full paragraph, please insert the following title:

A6

SUMMARY OF THE INVENTION

On page 6, please replace the 1st full paragraph with the following amended paragraph:

It is therefore an object of the present development to develop a system which reduces the light intensity in the beam path - at least for a specific period and separately for each beam path - in the case of using beam splitters at a maximum to the extent of the light intensity lost there (as a rule about 50%). In other words: a gain of about 50% of the light intensity - both in the case of recording and in the case of the insertion of images - is intended to be possible by contrast with conventional stereomicroscopes, although only a single image recording device or only a single display is provided for both beam paths. Furthermore, the superimposition between the right and the left image beam path is intended to be excluded.

A7

On page 7, please replace the 1st full paragraph with the following amended paragraph:

This additional object is achieved by means of features described below. The same problems or the same objects for microscopes having images to be reflected in instead of images to be recorded are also solved for the first time.

A8

On page 7, please replace the 2nd full paragraph with the following amended paragraph:

For the specific further processing of video images which have been obtained using a video stereomicroscope according to the invention, reference is made to the PCT patent application having priorities of the three applications CH3890/93-3; CH135/94-3 and CH198/94-5 (now U.S. Patent Nos. 5,870,137 and 6,040,852), which also count as lying within the scope of this disclosure. All the applications mentioned together, and the inventions on which they are based, are symbiotically complementary in the case of corresponding exemplary embodiments.

A9

On page 9, please replace the 3rd full paragraph with the following amended paragraph:

A10

Within the scope of the invention there are various further types of design and variants thereto, which are described below.

On page 13, please replace the 1st full paragraph with the following amended paragraph:

A11

A special design of the invention serves to reflect in information for an observer of an eyepiece beam path. All the previously mentioned specific and advantageous designs and variants can be used practically also in conjunction with this structure.

On page 13, please replace the 2nd full paragraph with the following amended paragraph:

A12

If, in conjunction with such a stereomicroscope, in each case a right and a left frame of a stereoimage pair is displayed on the display, the observer thus obtains a 3D image to view, which is superimposed on the 3D image of the eyepiece beam path. Advantageously, it is possible thereby for, for example, positron ray images or magnetic resonance stereoimages to be superimposed on the currently seen images. In the case of the use of such a stereomicroscope as a surgical microscope, this results in particular advantages for the surgeon, especially since he can interpret the image seen in a better way. On the other hand, the reflected-in images could also contain other information, for example about the control of devices or of the microscope itself. In this connection, reference is made to the following Swiss patent applications, whose content likewise counts as disclosed within the scope of this invention: CH 3890/93-3; CH 135/94-3; CH 198/94-5. A combination of the teachings of these applications with the present application is particularly practical. In particular, a combination having mechanical beam splitters is preferred, since in this case a further light intensity gain of about 100% (a total of about 200%) is possible.

On page 14, after the 3rd full paragraph, please insert the following title:

A13

BRIEF DESCRIPTION OF THE DRAWINGS

On page 14, please replace the 4th full paragraph with the following amended paragraph:

A14

Further details and designs of the invention emerge from the drawings. In the figures shown there:

On page 16, please replace the 4th full paragraph with the following amended paragraph:

A15

Fig. 19 shows a circuit for driving and synchronizing a mechanooptical switching element;

On page 16, please replace the 5th full paragraph with the following amended paragraph:

A16

Fig. 20 shows a construction having integrated illumination through the main objective;

On page 16, please replace the 6th full paragraph with the following amended paragraph:

A17

Fig. 21 shows an analytical listing of the high light losses caused by conventional technology 1) and a representation of the low light losses as a result of the technology according to the invention 2), as well as the advantage 3) resulting therefrom;

On page 17, after the 3rd paragraph, please insert the following title:

A18

DETAILED DESCRIPTION OF THE EMBODIMENTS

On page 18, please replace the 1st full paragraph with the following amended paragraph:

The other first beam path lb is likewise incident in the representation shown on a switching element 3a or on a mirror, which is nonetheless designed on a semicircular disk 5c, which can be rotated by a motor about the axis 6 in accordance with Fig. 1. In the position shown, the beam path la to the image recording device 9 is blocked off thereby, while the beam path lb is reflected as beam path 2 onto the image recording device 9. The central axis 7b of lb is in this case aimed at the same point as the central axis 7a. The two beam paths la and lb are thus superimposed consecutively but geometrically on one another. A further mirror 35 can also be located between the switching element 3a and the image recording device 9, in order to compensate the image mirroring caused by the optical arrangement. The image recording device would then have to be accordingly pivoted upward offset by approximately 90°.

A19

On page 20, please replace the 2nd full paragraph with the following amended paragraph:

Here, as also in the case of other designs, the mirror delivers, as already mentioned, an optimum light intensity, since neither losses as a result of polarization nor losses as a result of the use of a splitter occurs. Figure 6, like Figure 1, shows a CCD camera as an image recording device 9. However, this may also be designed as any other type of video camera.

A20

On page 21, please replace the 4th full paragraph with the following amended paragraph:

In the sense of the invention, it is not important which of the previously described switching elements 3 is used, although a rotating disk is preferred. Furthermore, as an alternative, in accordance with Figure 2 instead of a switching element, a conventional (for example glass) beam splitter 4 is also employed, an active alternating shutter element 3f as an aperture diaphragm then is switched into the beam paths 1a and lb alternately, said element making either the one or the other beam path 1a or lb able to be passed. To this extent, reference is expressly made to Figures 22 to 28, which show appropriate aperture diaphragms.

A21

On page 28, please replace the 1st full paragraph with the following amended paragraph:

In the sense of this construction it is not important which of the above-described switching elements 3 is used, although a rotating disk is preferred. Furthermore, as an alternative, instead of a switching element a conventional (e.g. glass) beam splitter could also be used, active aperture diaphragms then having to be switched into the beam paths 1a and lb alternately, said aperture diaphragms then making either one or the other beam path la or lb continuous. To this extent, reference is expressly made to Figures 22 to 28, which describe corresponding aperture diaphragms. The construction in accordance with Figure 20 or its variants could accordingly also be used independently.

A22

On page 31, please replace the 1st full paragraph with the following amended paragraph:

The drive (motor 14) of the disk 5 is to be synchronized with the reading-out of the image recording device 9. It is advantageous in this case if the reading-out of the image recording device 9 needs only part of the time during which the aperture diaphragm makes one of the two entry bundles of rays available to the device 9. The clock frequency for controlling the read-out of the recording device 9 is to be calculated from this prescription and from the rotational speed of the aperture diaphragm (e.g.: 50 Hz). The necessary clock signals are advantageously extracted by means of various frequency dividers from the output signal of an oscillator (clock), as can be seen from Fig. 19. A reduction in rotational speed can be achieved if, instead of an aperture diaphragm according to Fig. 3, an aperture diaphragm according to Fig. 4 is selected, whose three blocking areas are of circular segment design. In Fig. 25 it can be seen, indicated symbolically, that the corresponding drives 14 for the rotatable disks are driven by a common controller 12, which also undertakes the clocking of the image recording device 9 and the clocking of any stroboscopic illumination 17a and 17b.

A23

On page 31, please replace the last paragraph with the following amended paragraph:

Such a stroboscopic illumination is successfully used in those arrangements in which the aperture diaphragm instead of the disk 5, an aperture diaphragm which can be displaced in an oscillating manner, is used as switching element 3b. The latter is driven by a reciprocating drive 15. In this case, the aperture diaphragm comprises two blocking areas 5d and 5e which, for example, are applied to a rectangular glass disk in such a way that in the one position (shown) the beam path 1a is blocked and in the other the beam path lb is blocked. Instead of a glass disk, such an aperture diaphragm 3b could also be constructed, for example, from sheet metal, in which only the exposed regions of the aperture diaphragm are stamped out.

On page 33, please replace the 3rd full paragraph with the following amended paragraph:

As a further variant to 3a and 3b, the mechano-optical switching element 3e, which is designed as a micromechanical lamellar mirror construction according to Fig. 10, are conceivable, such a lamellar construction then preferably being placed into each beam path 1a, 1b.

On page 34, please replace the 2nd full paragraph with the following amended paragraph:

The construction according to Fig. 24 operates with a pupil splitter 19 made of two deflecting mirrors 19a and l9b, each of which deflects half the image information, as it is supplied by the display l0a, to the beam path 1a and lb, respectively. At the point of intersection of the beam paths 2a and 2b with la and 1b, beam splitters 50a are arranged which allow the geometric superimposition of the two beam paths la and 2a, and lb and 2b, respectively. A rotating aperture diaphragm 3a according to the invention alternately covers the corresponding regions in front of the pupil splitter 19a, so that in each case only one of the two beam paths la or lb is supplied with the image information. If the display correspondingly switches in each case between a right and a left frame, a stereoscopic image,

which is superimposed on the 3D image from the beam paths 1a and lb, is produced for an observer at the eyepiece 18a and l8b. From this construction, use of a second display 10 can be saved. The stereomicroscope according to the invention is accordingly of smaller construction.

On page 35, please replace the 2nd paragraph with the following amended paragraph:

The last described development thus relates to a stereomicroscope in which two beam paths 1a, b; 2a, b are intended to be superimposed geometrically but successively in time in a transparent manner. The known disadvantages, such as high light loss as a result of polarizers and analyzers or such, as undesired simultaneous superimposition of image information are intended to be avoided. This is achieved by means of a mechanical aperture diaphragm 3 which either exposes the one or the other beam path 1a, b; 2a, b and blocks the respective other beam path.

IN THE ABSTRACT:

Please add the Abstract of the Disclosure attached hereto on a separate sheet.